



Bizen Green Energy

Green, and More

Policy for better energy use in Japan

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Outline

-
- Japan in the energy and economic context
 - GDP and energy consumption
 - Energy use by sectors
 - Rough understanding of energy policy
 - “Act on the Rational Use of Energy” and Subsidy Programs
 - Regulatory and supporting measures by sectors
 - Overview of the Act
 - Act respecting the industrial sector
 - Act respecting commercial and residential sector
 - Act respecting transportation sector

Outline

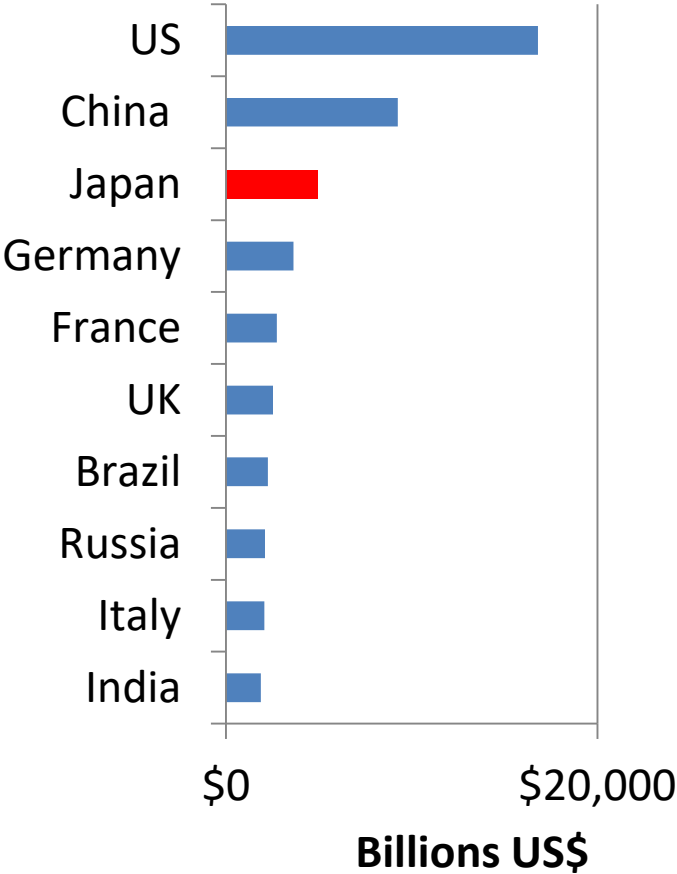


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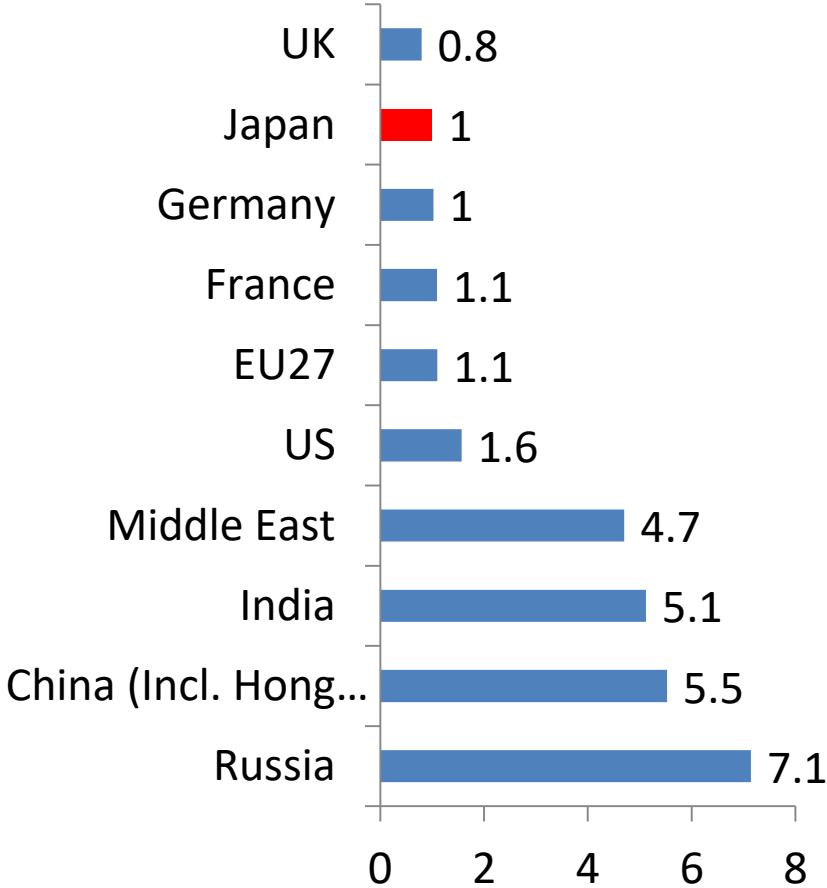
GDP and Energy Consumption

GDP by countries in 2013



Source: <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>

Primary energy supply per GDP (Index: Japan=1.0) in 2010



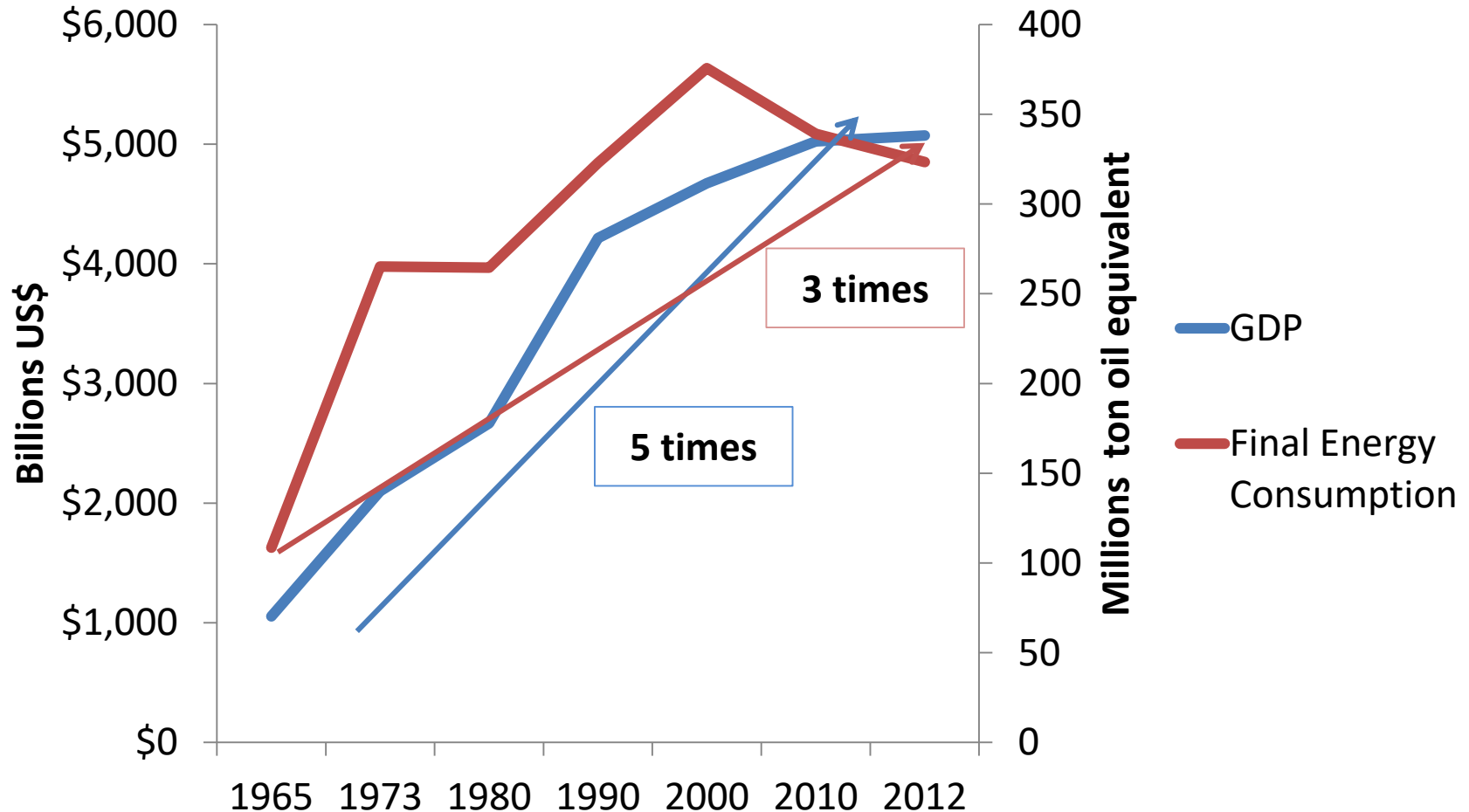
Source: <http://www.enecho.meti.go.jp/about/whitepaper/2013html/2-1-1.html>

GDP and Energy Consumption (cont'd)



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Final energy consumption and GDP trends in Japan

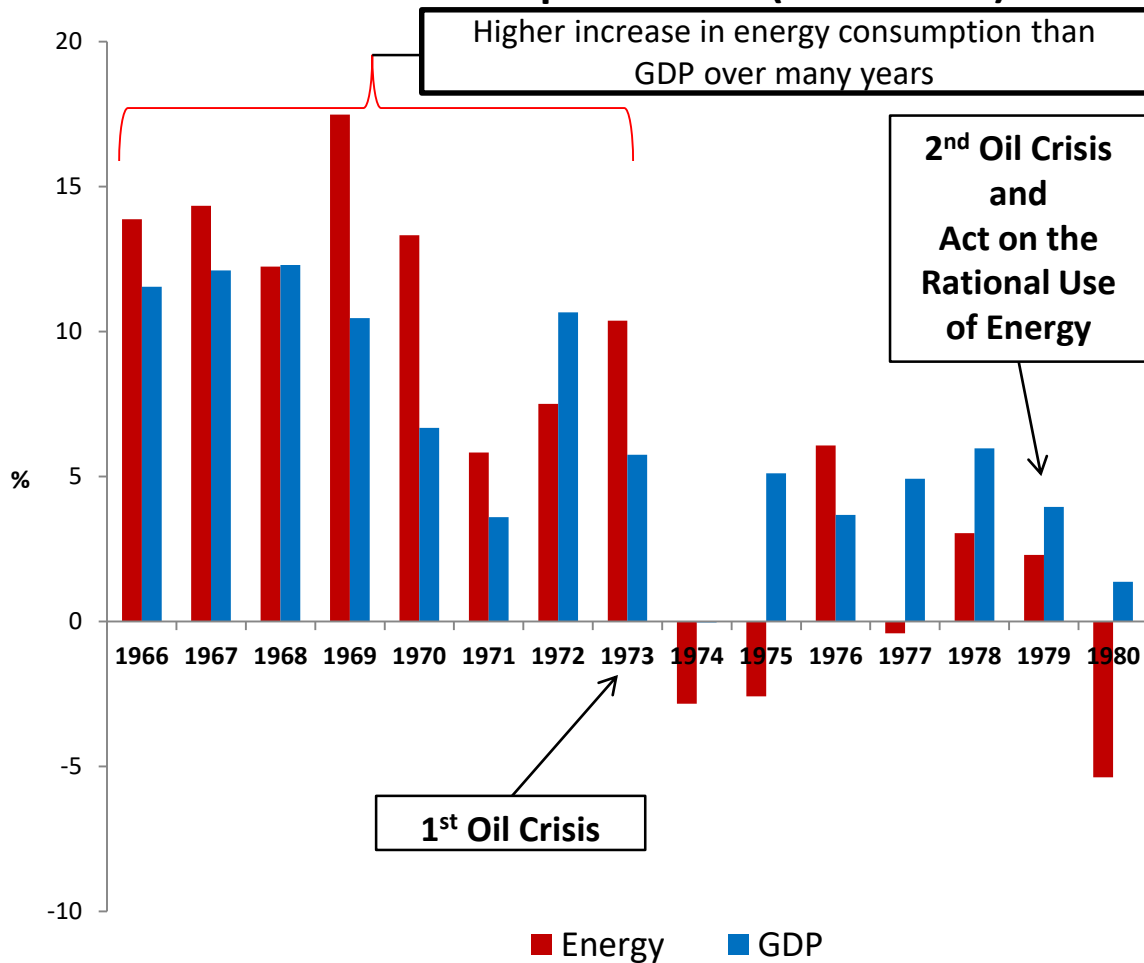


Source: Prepared from
<http://www.enecho.meti.go.jp/about/whitepaper/2013html/2-1-1.html>

Miracle in 1970-1980



The rate of increase per annum (1966-1980)



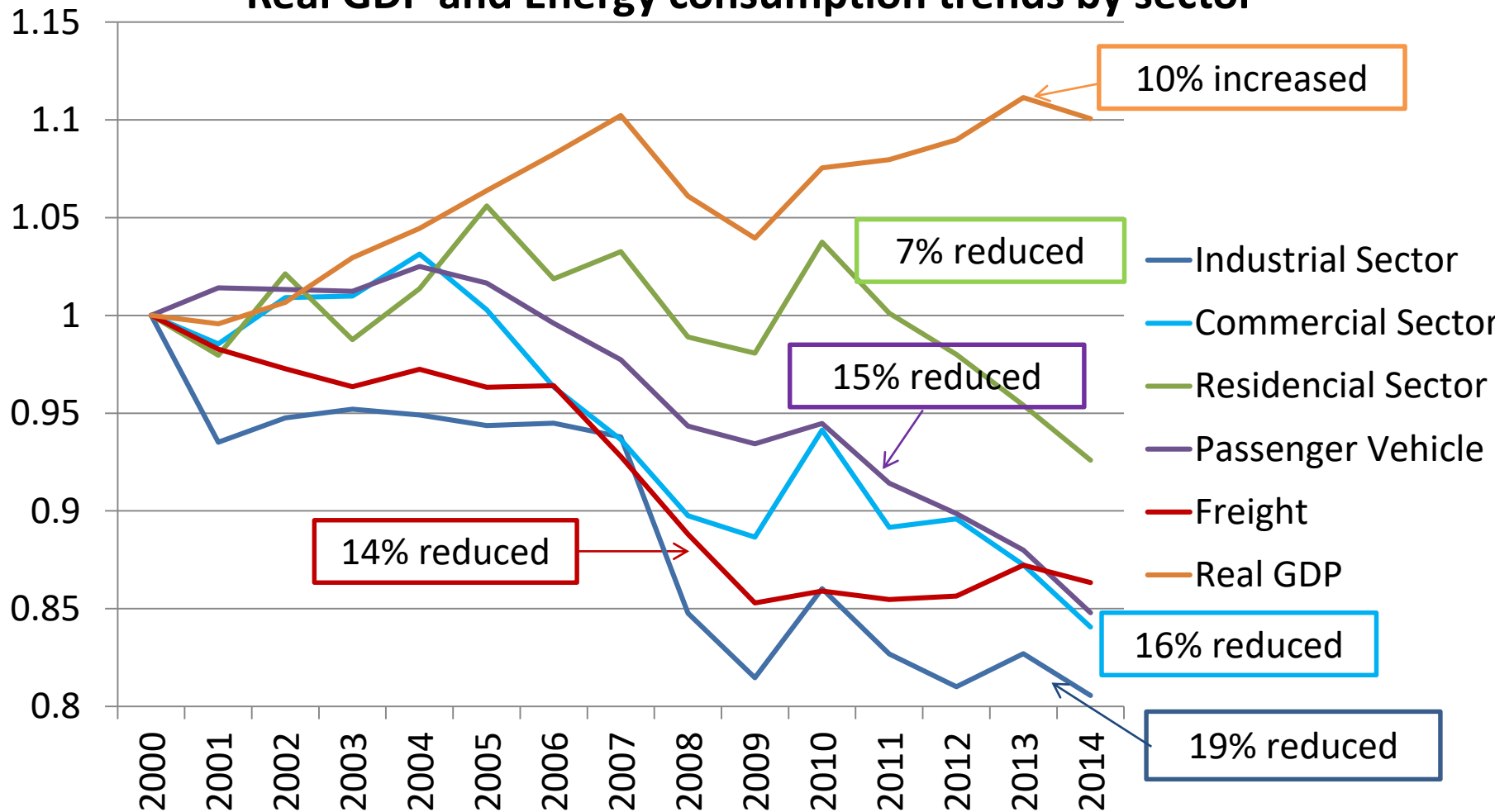
Year	Energy (%)	GDP (%)
1966	13.88	11.55
1967	14.34	12.11
1968	12.25	12.29
1969	17.49	10.47
1970	13.33	6.67
1971	5.83	3.60
1972	7.50	10.67
1973 (1st Oil Crisis)	10.37	5.76
1974	-2.83	-0.03
1975	-2.58	5.11
1976	6.07	3.67
1977	-0.40	4.93
1978	3.04	5.97
1979 (2nd Oil Crisis)	2.29	3.95
1980	-5.38	1.37

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Energy use by sectors

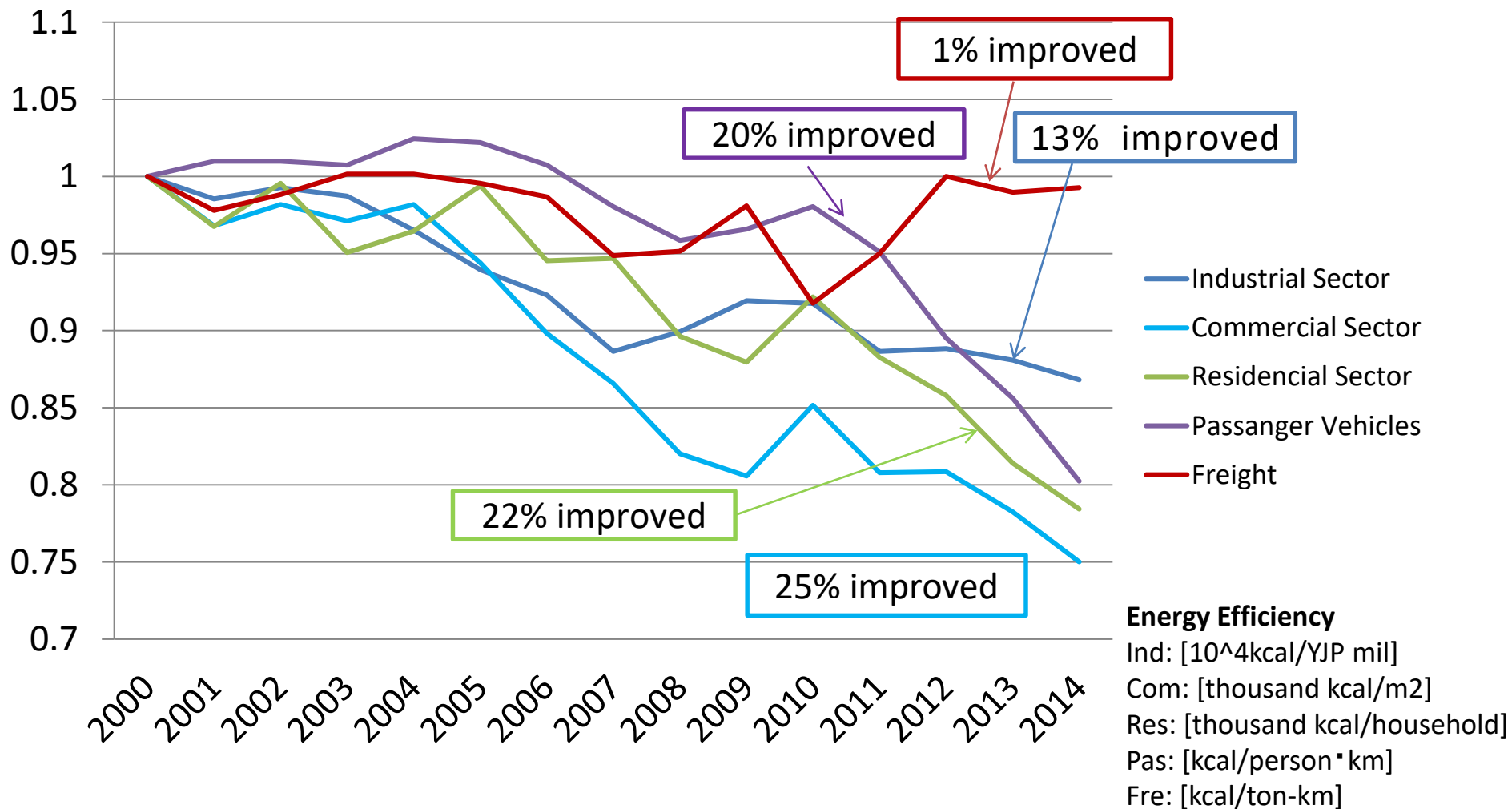
Real GDP and Energy consumption trends by sector



Source: Prepared from "EDMC Handbook of Energy & Economic Statistics in Japan (2014)"

Energy use by sectors (cont'd)

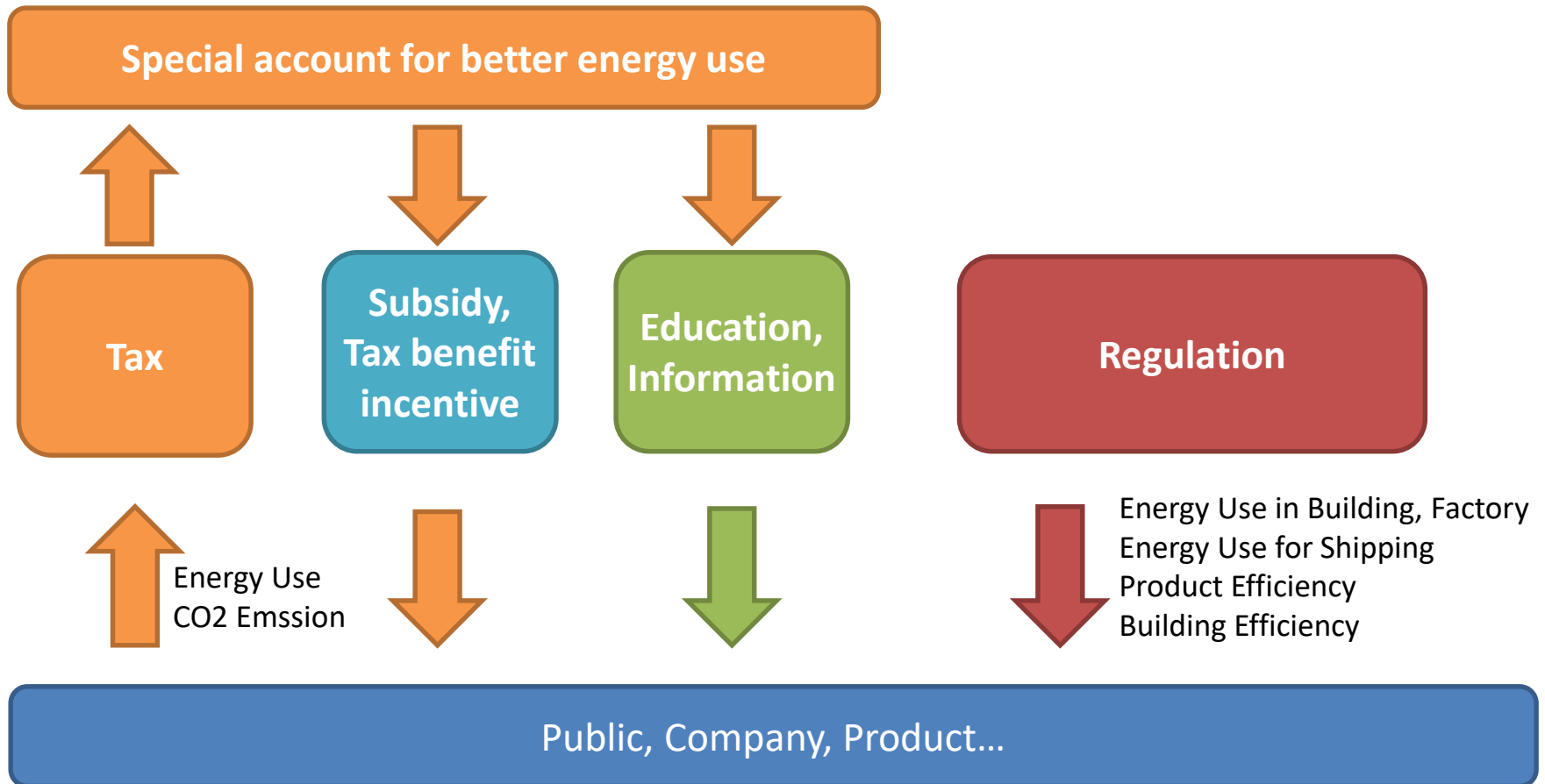
Energy efficiency trends by sectors



Source: Prepared from "EDMC Handbook of Energy & Economic Statistics in Japan (2014)"

Rough understanding of energy policy

Use Special account and regulation for better energy use



Effects of Energy Policy



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-
- Good
 - Administration
 - Can get money for Energy saving policy
 - Public, Company
 - Can earn financial profit by investment on energy saving
 - Develop energy saving market
 - Bad
 - Administration
 - Prevent sound development of energy saving market
 - Without Subsidy, Company do not invest on energy saving
 - Enlargement of administration
 - Cannot find exit strategy
 - Public, Company
 - Energy cost increase

Background of Japan public



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- Japanese accept increase of energy cost by CO2 tax
 - National Background
 - After large pollution problems(Minamata...), Japanese is sensitive to environmental problems
 - Japanese dislike to waste (aka “Mottainai”), and positive about energy saving
 - Large number of companies selling energy efficient product (car, electric appliance...)
 - A few company use large amount of energy (oil, steel...)

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Regulatory and Supporting Measures by Sectors



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	Industrial Sector	Commercial Sector	Residential Sector	Transportation Sector
Regulation (Act on the Rational Use of Energy)	For all business operators 1% reduction/yr			Periodical reports and mid-and long-term reports based on its number of vehicles and km to transport
	Periodical reports and mid-and long-term reports, appointments of “energy management officer”, etc. based on its energy consumption/yr			
	Energy conservation standard for a building with 300m ² or more			
	“Top Runner Program”			
Supporting Measures (Grant Programs & Tax Incentives)	Grant Program for Operators Promoting the Rational Use of Energy			Grant Program for Promotion of Energy Conservation for Logistics
		Grant program for innovative energy conservation technology for homes and buildings (ZEB & ZEH)		
	Green Investment Tax Cuts			
	Tax cuts for investments in productivity-improving equipment			*Education Coolbiz campaign...

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Overview of the Act



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- In 1979 after the two oil crises the law was enacted
- 7 revisions (the latest one in 2013)
- The latest revision focuses on:
 - Enhance insulation regulation
 - Strengthening measures to enhance the baseline of heat-insulating functions of housing/buildings
 - Consider peak demand cut
 - Curtailing electricity consumption at peak demand from utility grids by using storage batteries and other equipment as well as conventional measures to save energy



Effect of nuke problem after Fukushima earthquake

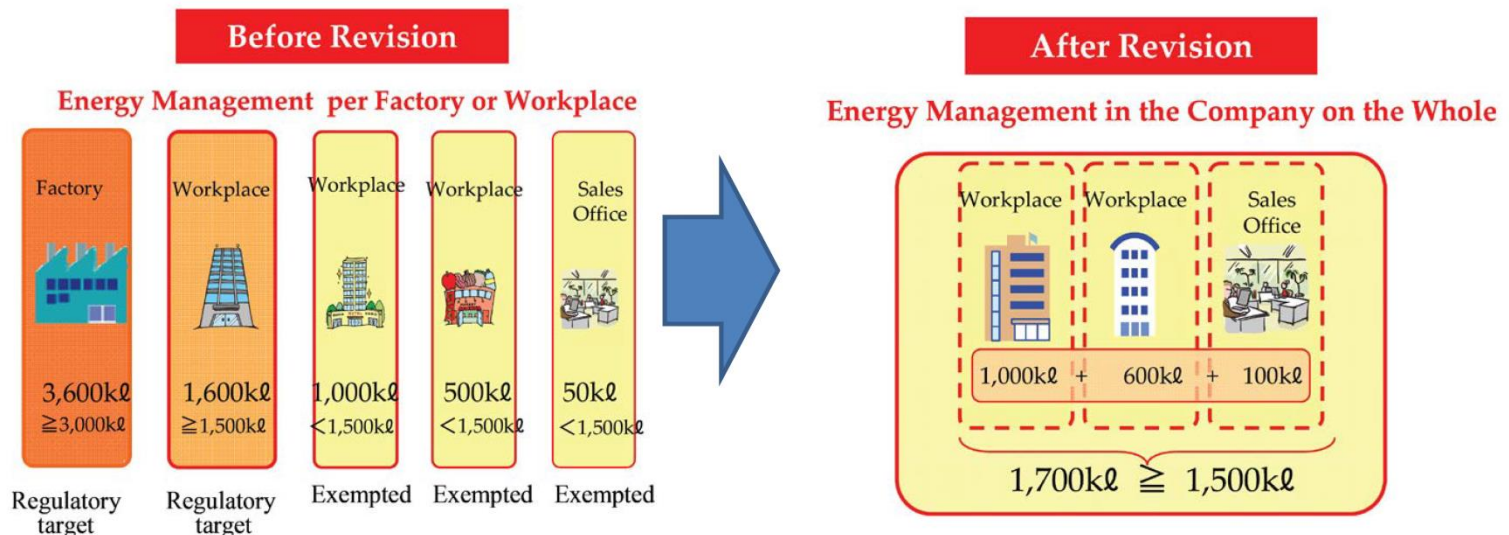
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Act Respecting Industrial Sector

- Ca. 90% of business operators consuming 1,500 kl/yr (crude oil equivalent) are covered
- Categories for specific business operators since the 2008 revision:
 - I. “Specific Business Operators” consuming the amount of oils by the factories and workplaces
 - II. “Specific Chain Business Operators” consuming the amount of oils by the factories, workplaces and member stores (e.g. convenience stores)

Source: http://www.eco-expo.jp/RXJP/RXJP_ECO-EXPO/documents/2014/seminar_20140718.pdf?v=635412619110434054



Act Respecting Industrial Sector (cont'd)



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Obligations of the specified (chain) business operators

- Annual reports on their state of energy use etc.
- Mid-and long-term energy management plans which include the company's energy conservation goal of reducing energy intensity by an annual average of 1% or more.
- Appoint qualified "Energy Management Control Officer" / "Energy Management Planning Promoter"

Aims of Operators

- Annual 1% Energy Intensity Reduction
- Curtailing energy demand at peak energy demand (since the 2013 revision)

Act Respecting Industrial Sector (cont'd)

Two types of factories

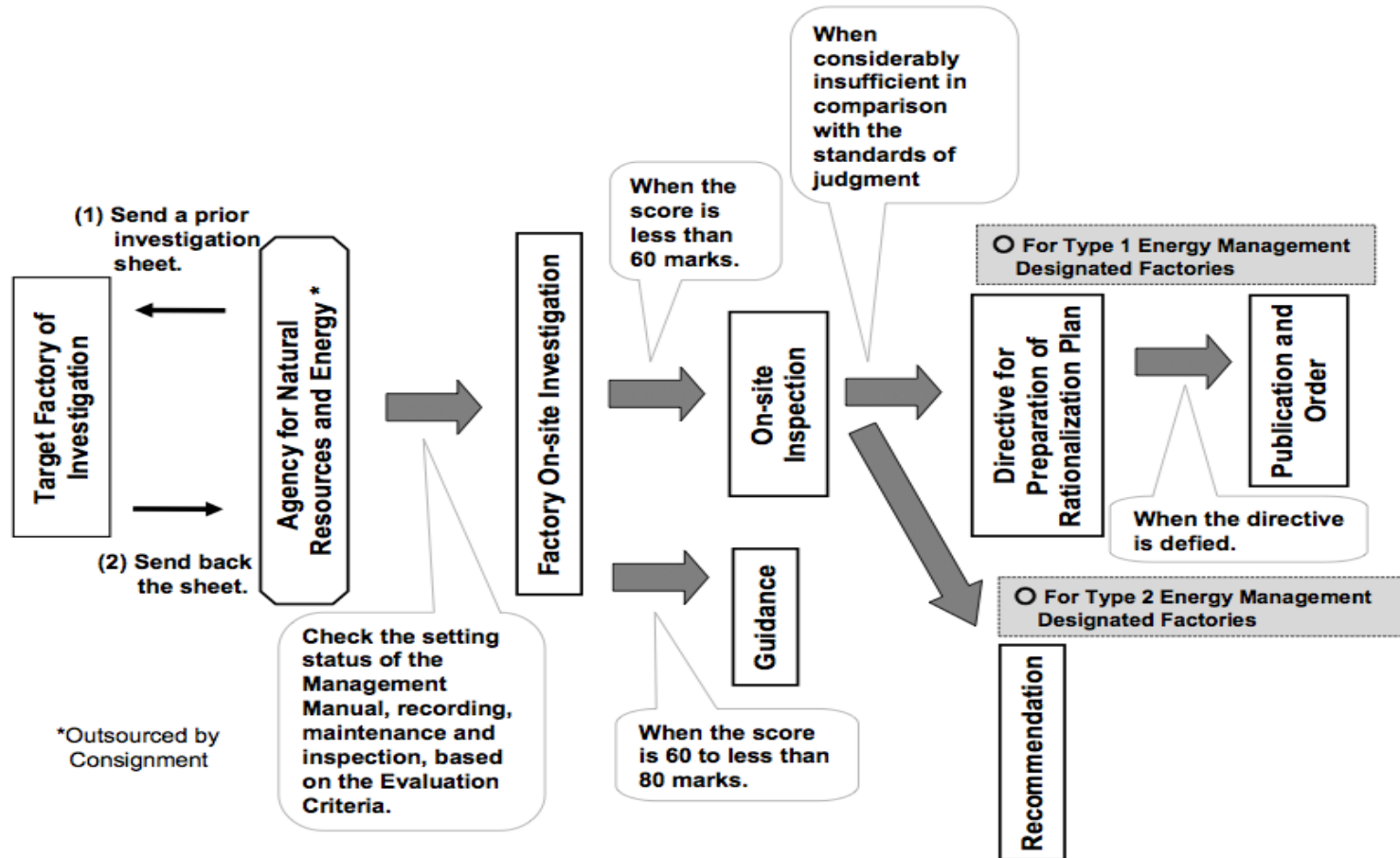
- I. “Type 1 Designated Energy Management Factories etc.” consuming 3,000 kl/yr or more crude oil equivalent
- II. “Type 2 Designated Energy Management Factories etc.” consuming 1,500 kl/yr or more but less than 3,000 kl/yr

Obligations

- Appointments of “Type 1 Energy Manager”/“Type 2 Energy Manager” in charge of the maintenance of energy-consuming equipment and the improvement and supervising of energy use

Act Respecting Industrial Sector (cont'd)

The role of the government:



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Act Respecting Commercial and Residential Sector

Commercial Sector

- Ca. 40% in the commercial sector is regulated and obliged to do the same as those in the industrial sector if consuming 1,500 kl/yr (crude oil equivalent) or more

Residential Sector

- Ca. 70% of final energy use per household is home appliances or equipment which are under the Top Runner Program

The Top Runner Program:

- The 3rd revision in 1999 introduced the program
- it is to set the most efficient equipment or machinery as a target standard value for the products in the same group;
- It is intended not only for those who produce the products but also for those who import them;
- The obligations are to reach the standard, put a label to show its “energy consumption efficiency” for consumers to purchase high efficient products and so on.

Act Respecting Commercial and Residential Sector (cont'd)



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Target products of top runner program

1. Passenger Vehicles
2. Air Conditioners
3. Lighting Equipment
(Lighting Equipment Using Only
Fluorescent Lamp(s) as Main Light
Source)
4. TV Sets
5. Copying Machines
6. Computers
7. Magnetic Disk Units
8. Freight Vehicles
9. Video Cassette Recorders
10. Electric Refrigerators
11. Electric Freezers
12. Space Heaters
13. Gas Cooking Appliances
14. Gas Water Heaters
15. Oil Water Heaters
16. Electric Toilet Seats
17. TVending Machines
18. Transformers
19. Electric Rice Cookers
20. Microwave Ovens
21. DVD Recorders
22. Routers
23. Switching Units
24. Multifunction Devices
25. Printers
26. Electric Water Heaters (Heat Pump Type
Water Supply System)
27. Motors
28. Self-ballasted LED Lamps
29. Insulation Materials
30. Sashes
31. Multi-Paned Glazing

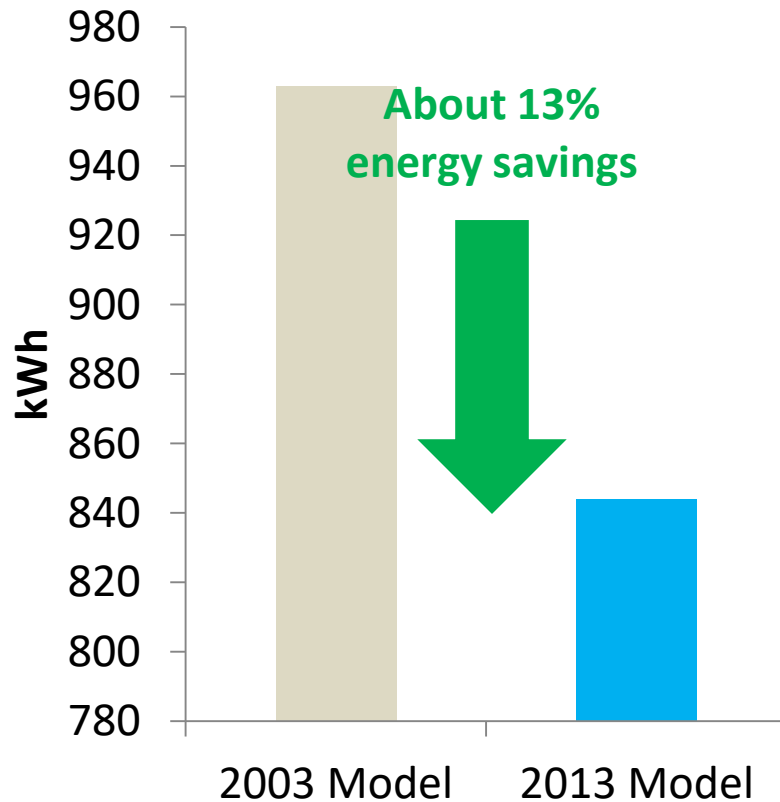
Act Respecting Commercial and Residential Sector (cont'd)



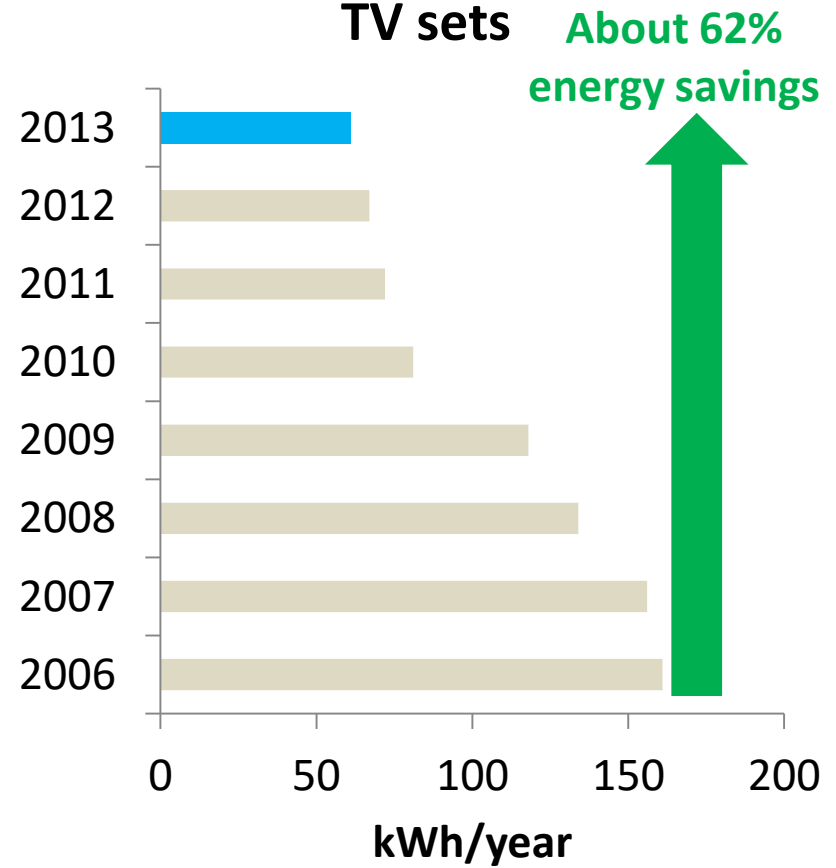
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Some of Top Runner Program outcomes

Air Conditioner



TV sets



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Act Respecting Transportation Sector



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- The two specified categories:
 - I. “Specified Carriers” are those who own a certain number of trains, buses etc.
 - II. “Specified Consigners” are those who transport 30 million ton kilo or more per year
 - Ca. 600 carriers and about 850 consigners are under the regulation
 - Obligations of the specified carriers and consigners
 - Periodical reports and mid-and long-term plans
 - Submitting notification of their transportation capacity for the specified carriers
 - Submitting notification of their volume of freight transportation for the specified consigners
 - Based on the periodical reports, some may have on-site inspections etc., and they are also advised, announced publically, or ordered for improvement when their measures are found significantly insufficient

Act Respecting Transportation Sector (cont'd)

- Ca. 60% fuel economy improvement in cars between 1999 and 2012 since cars have been subject to the Top Runner Program in 1999

